



IPW

Customer No. 22,852
Attorney Docket No. 05725.1303

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re Application of:

Nathalie MOUGIN

Application No.: 10/734,181

Filed: December 15, 2003

For: HAIR-COSMETIC COMPOSITION
COMPRISING AT LEAST ONE FILM-FORMING
GRADIENT COPOLYMER, AEROSOL
COMPOSITION COMPRISING THE
COSMETIC COMPOSITION AND METHOD
FOR TREATING HAIR USING THE
COMPOSITION

Group Art Unit: 1615

Examiner: Unassigned

Commissioner for Patents
P.O. Box 1450
Alexandria, Virginia 22313-1450

Sir:

**REQUEST FOR CORRECTED PATENT APPLICATION
PUBLICATION UNDER 37 C.F.R. § 1.221(b)**

The U.S. Patent and Trademark Office published the above-identified application as Publication No. US-2004-0180019 on September 16, 2004. The published application contains mistakes that are the fault of the Office and are, in Applicant's view, material. Attached hereto is a copy of each relevant page of the originally filed application and a marked-up copy of the corresponding pages of the published application containing the mistakes.

A mistake is material when it affects the public's ability to appreciate the technical disclosure of the patent application publication or determine the scope of the provisional

rights that an applicant may seek to enforce upon issuance of a patent. See C.F.R. § 1.221(b). Each of the mistakes listed below may affect the public's ability to appreciate the technical disclosure of the patent application publication or to determine the scope of provisional rights.


The mistakes, which are indicated in red ink on the relevant pages of the marked-up copy of the published application are attached hereto. The duplicate text should be deleted in order to avoid confusion.

For at least the foregoing reasons, Applicant requests that the Office correct the above-identified material mistakes in the published application, which was the fault of the Office. Further, Applicant requests that the Office forward a copy of the corrected published application or at least a notification of the occurrence or predicted occurrence of the corrected publication once it has been corrected.

Applicant believes that no Petition or fee is due in connection with this Request. However, if any Petition or fee is due, please grant the Petition and charge the fee to our Deposit Account No. 06-0916.

Respectfully submitted,

FINNEGAN, HENDERSON, FARABOW,
GARRETT & DUNNER, L.L.P.

By: 

Mark D. Sweet
Reg. No. 41,469

Dated: November 16, 2004



Attorney Docket No. 05725.1303-00000

chains with completely different structures, conferring on the copolymers different properties. This example therefore illustrates the influence of the initial monomer compositions on the arrangement of the various monomers along the chain.

[051] In the case of a styrene/methacrylic acid gradient copolymer, the different polymers obtained can be represented schematically as follows, with the white units corresponding to styrene and the dark units corresponding to methacrylic acid:

10% methacrylic acid initially:



Copolymer with a very low gradient, for which nanostructurization cannot be expected.

20% methacrylic acid initially:



Copolymer with a hydrophilic "head" and hydrophobic "tail", with a gradient that is sufficiently pronounced to lead to nanostructurization.

50% methacrylic acid initially:



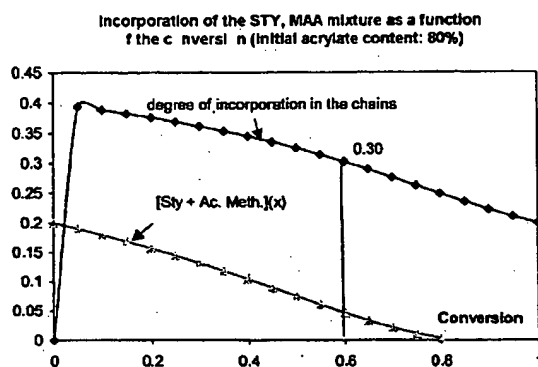
Since the monomers are isoreactive in these conditions, the copolymer obtained is of the alternating type.

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[052] The structure of these polymers may be determined by the disappearance of the methacrylic acid as a function of the degree of conversion.

[053] The at least one film-forming gradient copolymer, as disclosed herein, comprises at least two different monomeric residues, wherein each of which can be present in an amount ranging from 1% to 99% by weight, relative to the total weight of the copolymer, such as in an amount ranging from 2% to 98% by weight, relative to the total weight of the copolymer, and for instance, in an amount ranging from 5% to 95% by weight, relative to the total weight of the copolymer.

Attorney Docket No. 05725.1303-00000



[0196] Using LAC, the trace of the polymer showed the low polydispersity of the chemical composition of the chains.

[0197] Measurement of the molecular weights by steric exclusion chromatography lead to the following results:

Mn was equal to 32,140 g/mol and Mw was equal to 51,700 g/mol, hence the polydispersity index I_p was equal to 1.6.

[0198] The composition dispersity (or w) was 1.6.

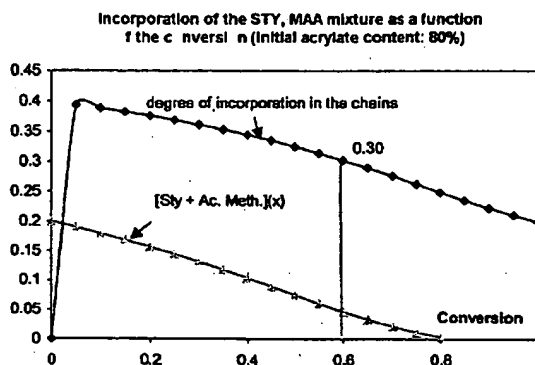
[0199] The following was a possible schematic representation of the copolymer obtained:



wherein the darkened units denote the styrene/methacrylic acid linkages, and the white units denote the ethyl acrylate linkages.

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Time	0	75	130	190	290	400
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Overall						
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conversion	0	16	30.5	49.5	85.4	99
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residual (%)	MeA	5.45	5.1	3.75	3.75	1.6	0.13
	EA	48.95				17.95	1.2
	MAA	12.8	12.15	4.6	2	0.35	0.08
	S	12.8	12.46	6.7	3.92	0.15	0.007

- EA: ethyl acrylate

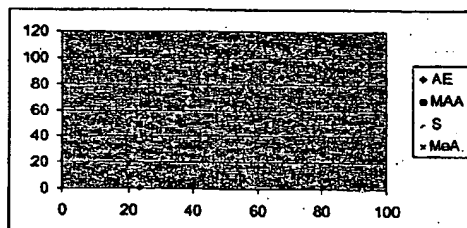
- MeA: methyl acrylate

- S: styrene

- MAA: methacrylic acid

[0211] The total residual content was calculated, taking into account the solvent, quantified by the solids content.

[0212] It was noted that each monomer was present throughout the reaction. The gradient determined for each monomer could then be calculated, and gave the following curves:



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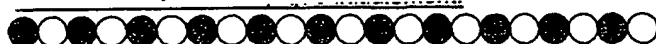
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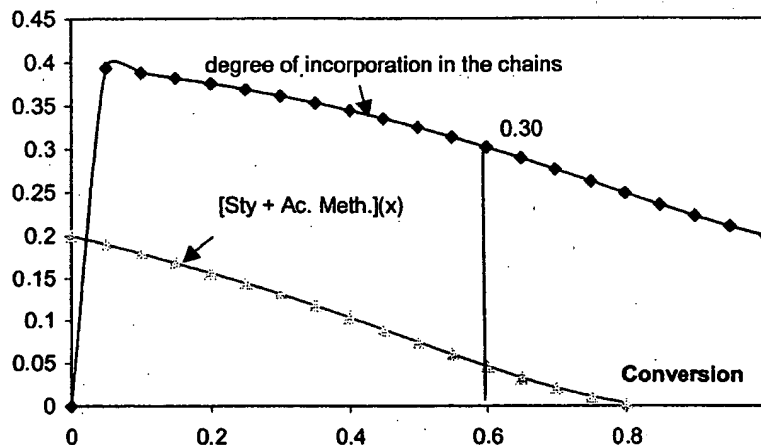


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Incorporation of the STY, MAA mixture as a function of the conversion (initial acrylate content: 80%)



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